

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 26, 1996

Date Received: February 20, 1996

Project: Holnam Testing, PO #M52343

Date Samples Extracted: February 20 and 21, 1996

Date Extracts Analyzed: February 23, 1996

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TCLP METALS IN ACCORDANCE WITH
40 CFR PART 261**

Results Reported as mg/L (ppm)

<u>Sample ID</u>	<u>M52343 A</u> (3317)	<u>M52343 B</u> (3350)	<u>M52343 C</u> (3317 Plasma)	<u>TCLP Limit</u>
Analyte:				
Arsenic	<0.5	<0.5	<0.5	5.0
Barium	2	1	<1	100
Cadmium	<0.1	<0.1	<0.1	1.0
Chromium	4.5	0.5	3.4	5.0
Lead	<0.5	<0.5	<0.5	5.0
Selenium	<0.5	<0.5	<0.5	1.0
Silver	<0.5	<0.5	<0.5	5.0

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FOR TCLP METALS IN ACCORDANCE WITH**

40 CFR PART 261

Results Reported as mg/L (ppm)

<u>Sample ID</u>	<u>M52343 D</u> (80)	<u>Method Blank</u>	<u>TCLP Limit</u>
Analyte:			
Arsenic	<0.5	<0.5	5.0
Barium	<1	<1	100
Cadmium	<0.1	<0.1	1.0
Chromium	<0.5	<0.5	5.0
Lead	1.7	<0.5	5.0
Selenium	<0.5	<0.5	1.0
Silver	<0.5	<0.5	5.0

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**QUALITY ASSURANCE RESULTS
 FOR TCLP METALS IN ACCORDANCE WITH
 40 CFR PART 261
 Results Reported as mg/L (ppm)**

Laboratory Code: 66660 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Arsenic	mg/L (ppm)	<0.5	<0.5	nm	0-20
Barium	mg/L (ppm)	<1	<1	nm	0-20
Cadmium	mg/L (ppm)	<0.1	<0.1	nm	0-20
Chromium	mg/L (ppm)	<0.5	<0.5	nm	0-20
Lead	mg/L (ppm)	1.7	1.7	0	0-20
Selenium	mg/L (ppm)	<0.5	<0.5	nm	0-20
Silver	mg/L (ppm)	<0.5	<0.5	nm	0-20

Laboratory Code: 666660MS/MSD

Analyte:	Reporting Units	Spike Level	Sample Result	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Arsenic	mg/L (ppm)	10	<0.5	99	100	50-150	1
Barium	mg/L (ppm)	5	<1	97	92	50-150	5
Cadmium	mg/L (ppm)	5	<0.1	101	101	50-150	0
Chromium	mg/L (ppm)	5	<0.5	99	99	50-150	0
Lead	mg/L (ppm)	10	1.7	101	102	50-150	1
Selenium	mg/L (ppm)	10	<0.5	119	118	50-150	1
Silver	mg/L (ppm)	2	<0.5	78	78	50-150	0

Laboratory Code: Spike Blank

Analyte:	Reporting Units	Spike Level	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Arsenic	mg/L (ppm)	10	102	97	80-120	5
Barium	mg/L (ppm)	5	105	101	80-120	4
Cadmium	mg/L (ppm)	5	104	95	80-120	9
Chromium	mg/L (ppm)	5	103	97	80-120	6
Lead	mg/L (ppm)	10	105	98	80-120	7
Selenium	mg/L (ppm)	10	98	97	80-120	1
Silver	mg/L (ppm)	2	84	77	80-120	9

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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**RESULTS FROM THE ANALYSIS OF TCLP EXTRACT SAMPLES
FOR TOTAL MERCURY BY COLD VAPOR**

Results Reported as mg/L (ppm)

<u>Sample ID</u>	<u>Mercury</u>
M52343 A (3317)	<0.002
M52343 B (3350)	<0.002
M52343 C (3317 Plasma)	<0.002
M52343 D (80)	<0.002
Method Blank	<0.002

FRIEDMAN & BRUYA, INC.**ENVIRONMENTAL CHEMISTS**

Date of Report: February 26, 1996

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Project: Holnam Testing, PO #M52343

**QUALITY ASSURANCE RESULTS
FOR TOTAL MERCURY BY COLD VAPOR**

Laboratory Code: 66660 (Duplicate)

<u>Analyte:</u>	<u>Reporting Units</u>	<u>Sample Result</u>	<u>Duplicate Result</u>	<u>Relative Percent Difference</u>	<u>Acceptance Criteria</u>
Mercury	(ppm)	<0.002	<0.002	nm	0-20

Laboratory Code: 66660 DP

<u>Analyte:</u>	<u>Reporting Units</u>	<u>Spike Level</u>	<u>Sample Result</u>	<u>% Recovery</u>	<u>Acceptance Criteria</u>	<u>Relative Percent Difference</u>
Mercury	(ppm)	0.003	<0.002	75 71	50-150	5

Laboratory Code: Spike Blank

<u>Analyte:</u>	<u>Reporting Units</u>	<u>Spike Level</u>	<u>Sample Result</u>	<u>% Recovery MS</u>	<u>Acceptance Criteria</u>
Mercury	(ppm)	0.003	<0.002	93	80-120

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

KNJ AI
02.20.96
10:45

Send Report To:

Contact GERALD Thompson

City, State, Zip Seattle WA 98131

Phone # (206) 382-8379

Date 2-20-96

SIT: O.

PROJECT NAME

PURCHASE ORDER #



SAL. ERS (signature)

PROJECT LOCATION

REMARKS

SAMPLE DISPOSAL INFORMATION

☐ Dispose after 30 days
☒ Return Samples
☐ Call for Instructions

TITLE	PRINT NAME	COMPANY	Date	Time
Issued by: 	GERALD Thompson	A.C.W	9/20/96	10:15am
Received by: 	Cathy Downing	FBI	2.20.96	10:20
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 26, 1996

INVOICE # 96ACU0226-1
DUPLICATE COPY

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project Holnam Testing, PO #M52343: Results of testing requested by Gerry Thompson, Project Manager for material submitted on February 20, 1996.

4 soil samples analyzed for TCLP Metals @ \$180 per sample	\$ 720.00
Amount Due	\$ 720.00

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James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 26, 1996

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the results from the testing of material submitted on February 20, 1996 from your Holnam Testing, PO #M52343 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Kurt Johnson
Chemist

keh
Enclosures
ACU0226R.DOC